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Half-Yearly Review Alberta Oil, Jan. 1 to  
June 30, 1939.



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HALF-YEARLY REVIEW  
  
ALBERTA OIL

JANUARY 1 TO JUNE 30, 1939

By J. L. IRWIN  
*Statistician, Dept. of Lands and Mines*

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Printed by A. Shnitka  
King's Printer







# HALF-YEARLY REVIEW ALBERTA OIL

By J. L. IRWIN  
*Statistician, Dept. of Lands and Mines*

The progress of Alberta's oil industry during the first half of 1939 has been admittedly satisfactory.

This statement may be conscientiously made, for in the table appearing below the 1938 total shows the huge increase of 1,858,807 barrels, and the 1939 total, though area of market was much the same, reveals an increase of 424,899 barrels.

Before commenting on this it would be better, perhaps, for purposes of illustration, to present a production statement of the first 6 months of 1936, 1937, 1938 and 1939, together with proration and allowable tables governing same. They are as follows:

## ALBERTA OIL PRODUCTION

	1936	1937	1938	1939	Comparisons 1938 and 1939
January .....	105,171	127,977	444,196	515,539	71,343 Increase
February .....	96,077	140,515	401,587	340,107	61,480 Decrease
March .....	101,857	161,832	467,732	366,898	100,834 Decrease
April .....	94,230	172,608	447,241	543,489	96,248 Increase
May .....	98,789	175,997	546,719	690,066	143,347 Increase
June .....	97,639	191,634	521,895	798,170	276,275 Increase
Half-yearly totals .....	593,763	970,563	2,829,370	3,254,269	424,899 Increase
Increase first 6 months 1937 over 1936.....					376,800 barrels
Increase first 6 months 1938 over 1937.....					1,858,807 barrels
Increase first 6 months 1939 over 1938.....					424,899 barrels

With the rapid growth of Alberta's oil production in 1937, coupled with the limitations of a localized market, the measure of proration of production was introduced by the refineries. This became effective for the first time on September 12th of



this year and was followed by the changing rates as demonstrated below:

#### PRORATION DATES AND AMOUNTS

1937—		Per cent of capacity
September 12 .....		65
November 1 .....		45
November 15 .....		35
1938—		
January 15 .....		42
June 1 .....		30
June 17 .....		37

On September 2nd, 1938, The Petroleum and Natural Gas Conservation Board issued its first allotment of allowable production by application of a formula governed by rate of flow of a well through a given orifice, bottom hole pressure, gas/oil ratio and acreage allowance. Under this changed system proration orders were continued and were distributed as follows:

1938—		Daily Allowable (Barrels)
September 2 .....		28,000
September 24 .....		22,000
October 20 .....		14,500
October 28 .....		11,500
December 5 .....		12,500
1939—		
February 1 .....		10,000
April 1 .....		17,500
April 28 .....		19,500
May 13 .....		22,500
May 19 .....		25,000
June 13 .....		27,000
*July 8 .....		27,000

\*Taking in new wells but with the same allowable total as on June 13th.

The production table above is illuminating. With the exception of the last two weeks of the half-year, the total for the first six months of 1936 of 593,763 barrels materialized prior to the appearance of the famous Turner Valley Royalties well, the first of the major producers of crude oil from the limestone in Turner Valley, which came in so dramatically on June 16th, 1936. This total practically represents, therefore, a naphtha production only, and represents also an approximate average six month total dating back to 1929.



At the close of the first six months of 1937 the crude oil producers of the Valley numbered ten and the total of 970,563 barrels, an increase of 376,800, was absorbed without trouble by the local market and without any restriction on production being levied.

By June 30th, 1938, the crude producers had increased in number to 38. With the resultant increase of production the capacity of pipe-lines and of refining and marketing facilities was completely exceeded by the available product, necessitating a proration of wells which was instituted on September 12th, 1937, with varying rates which followed from time to time, as shown above.

Even with this restriction, the first six months of 1938 gave a production total of 2,829,370 barrels, an increase of 1,858,807. This total represented approximately all that the extended market of that time—eastern British Columbia, Alberta, Saskatchewan and the greater part of Manitoba—which, by the way, is the same market as today—could absorb.

By June 30th, 1939 the crude producers rose in total to 78 with a production for the first six months of the year of 3,254,269 barrels, an increase of only 424,899.

At the close of 1937 commitments for imported oil, in the face of greatly increased home production, were obviously not renewed. With the western market extended to the area already described and with imports restricted, the increase of 1,858,807 barrels on June 30th, 1938 is easy to understand. By June 30th, 1939, with the market incapable of further expansion on account of prohibitive freight rates, the total production for this period could obviously show little increase—the producing wells, more than doubled in number, being held to an allowable production which would accommodate the western demand.

It is a situation which must remain unchanged until the question of transportation—rail or pipe-line—permits an extension of market. With this accomplished, not only will



production increase but drilling activity, with a guaranteed and enlarged market, will advance considerably, both in the Valley and in other fields of the province.

#### DELEGATION TO LONDON

A delegation of three—the Honourable N. E. Tanner, Minister of Lands and Mines; Dr. G. S. Hume of the Dominion Government Geological Survey and W. F. Knode, petroleum engineer and chairman of the Alberta Petroleum and Natural Gas Conservation Board—sailed from Canada on April 8th of this year for London, England.

The delegation was instigated at the request of the chief Canadian Trade Commissioner in London as a result of enquiries from many different sources in Great Britain. The demand for authoritative information, geological, technical and general, surrounding Alberta's oil industry, was strong enough to warrant such a move being taken.

The members of the delegation returned to Canada early in June. Many contacts, both governmental and industrial, were made and a great deal of long wanted first-hand information was given to applicants interested in Alberta's oil development.

#### DAILY ALLOWABLE PRODUCTION

With reference to the daily allowable production total of 10,000 barrels, effective on February 1st of this year, and that of 27,000 on July 8th, it will be noticed from the statement already shown that between these two dates there were a number of changes which were continually on an upward grade, demonstrating the usual increase in seasonal demand.

Because of the general interest shown in increased allowables of individual wells, the following table gives the daily allowable totals of wells on February 1st, when permitted production was at its lowest, and also on July 8th, when it had risen to its highest. Individual increases are also shown.



*Schedules to the Order of the Petroleum and Natural Gas  
Conservation Board, Governing the Production of  
Crude Oil Wells in Turner Valley, Alberta*

DAILY ALLOWABLE, BARRELS

Names of Wells	Order No. 6	Order No. 12	Increase
	Feb. 1st, 1939	July 8th, 1939	
Advance 5A .....	43	65	22
Anglo-Canadian 1 .....	165	290	125
Anglo-Canadian 3 .....	199	599	400
B. & B. 1 .....	54	132	78
Barsac 1 .....	131	240	109
Brown Consolidated 1 (Producers Crude) .....	223	(Overhauling)	.....
Brown 1 .....	118	363	245
Brown 2 .....	189	325	136
Brown 4 .....	159	268	109
Brown 5 .....	115	170	55
Command 1 .....	183	494	311
Commoil 1 .....	223	712	489
Commoil 2 .....	226	430	204
Consolidated 1 .....	212	550	338
Coronation 1 .....	215	400	185
D. & D. 1 .....	*	225	.....
Davies 1 .....	160	375	215
Davies 2 .....	140	357	217
Davies 4 .....	174	430	256
Extension 1 .....	277	682	405
Firestone 1 .....	122	165	43
Foundation 1 .....	94	115	21
Four Star 1 .....	101	330	229
Frontier 1 .....	256	784	528
Globe 1 .....	128	155	27
Granville 1 .....	91	120	29
Harris 1 .....	*	220	.....
Harris 2 .....	*	600	.....
Home-Millarville 2 .....	276	939	663
Mercury Royalties 1 .....	86	187	101
Model 1 .....	83	100	17
Model 2 .....	15	15	.....
Model Spooner 1 .....	29	Gas Well	.....
Model Spooner 2 .....	131	410	279
Monarch 1 .....	107	150	43
National 1 .....	57	194	137
National 2 .....	116	175	59
Oil Ventures 1 .....	*	401	.....
Pacific Pete 1) Formerly .....	171	600	429
Pacific Pete 2) West Turner .....	166	514	348
Pacific Pete 3) Wells .....	174	500	326
Prairie 1 .....	235	600	365
Richwell 1 .....	116	285	169
Royal Canadian 1 .....	182	350	168
Royal Canadian 2 .....	302	721	419
Royal Crest 1 .....	126	200	74
Royalite 28 .....	128	200	72
Royalite 29 .....	131	344	213
Royalite 30 .....	254	751	497



Names of Wells		Order No. 6 Feb. 1st, 1939	Order No. 12 July 8th, 1939	Increase
Royalite 31	.....	118	190	72
Royalite 32	.....	160	250	90
Royalite 33	.....	153	200	47
Royalite 34	.....	93	120	27
Royalite 35	.....	*	375	.....
Royalite 36	.....	*	764	.....
Royalite 37	.....	*	600	.....
Royalite 38	.....	*	788	.....
Share 1	.....	83	115	32
Spy Hill 1	.....	60	50	10†
Sterling Pacific 3	.....	32	61	29
Sterling Pacific 4	.....	114	300	186
Sterling Pacific 5	.....	126	200	74
Sterling Pacific 6	.....	125	200	75
Sunburst 1	.....	102	155	53
Sundance 1	.....	262	720	458
Sunset 1	.....	258	651	393
Sunset 2	.....	232	475	243
Three Point 1	.....	71	73	2
T. V. R. 1	.....	83	179	96
United 5	.....	206	445	239
Vulcan-Brown 1	.....	283	823	540
Westflank 1	.....	74	100	26
Westflank 2	.....	105	177	72
Westflank 3	.....	70	110	40
Westside 1	.....	95	116	21
York 1	.....	212	676	464

#### TEMPORARY ALLOWABLES PENDING TEST

British Colonial 1	.....	*	400	.....
East Crest 4	.....	*	125	.....
Inter-City 1 (formerly Brown Consolidated 1—Producers Crude)	.....	.....	80	.....
York 2	.....	*	250	.....
TOTALS	.....	10,000	27,000	.....

The above table shows a total of 78 crude oil producing wells in Turner Valley by July 8th, 1939, with a daily allowable production total increased by 17,000 barrels to a total allowable production of 27,000 barrels per day.

\*Not in production at this date.

†Decrease.

From the above table the following summary is presented:

#### CLASSIFICATION AND NUMBER OF WELLS AS PER DAILY PRODUCTION ALLOWED

Date	900 bbl. class	800 bbl. class	700 bbl. class	600 bbl. class	500 bbl. class	400 bbl. class	300 bbl. class
1939—							
February 1	.....	.....	.....	.....	.....	.....	1
July 8	1	1	7	7	4	9	9



Date	200 bbl. class	100 bbl. class	Less than 100 bbl. class	Total Number of Wells
1939—				
February 1 ....	16	33	18	68
July 8.....	13	21	6	78

### BRITISH AMERICAN OIL REFINERY

A feature of the half-year was the opening on May 13th of the new oil refinery of the British American Oil Company in Calgary.

Construction was started in October, 1938 and completed in April. The plant is of the most modern design with a maximum capacity of 5,000 barrels per day and the site in east Calgary is highly suitable with its facilities in railway and water.

The new refinery represents a construction cost approximating one and a half million dollars and will require 750 h.p. for operation. Water from the Elbow river is supplied by 150 h.p. pumps with a capacity of 4,500,000 gallons per day.

Crude oil is received direct from Turner Valley through Royalite pipe-lines and the control system requires manipulation of more than 6,000 valves.

### IMPERIAL OIL COMPANY REFINERY

By the close of the year the construction of a modern unit for the Imperial Oil Company's refinery in east Calgary is also expected to be ready.

The cost of the plant will be in the neighbourhood of one and three-quarter million dollars and will accommodate a steady stream of crude oil totalling more than 2,500,000 barrels per year.

With this completion, Calgary, the oil centre of Canada, will boast the second largest refinery in the Dominion. Also with this completion, and with the new British American refinery now in operation, the southern Alberta city will be justified in being regarded as the Tulsa of Canada, with Sarnia, Ontario, where the refineries are fed mainly by crude



oil imported from the United States, as the only real competitor.

## DRILLING IN OTHER ALBERTA FIELDS

### *Steveville.*

Drilling at Steveville, 120 miles east of Calgary and about 150 miles east of Turner Valley, is attracting considerable attention. A salt-water intrusion has, however, delayed production for the time being in this area.

During experimentation, Steveville No. 1 well was gun perforated at a shallower horizon, the 2,750 foot level, which resulted in a heavy flow of gas measured at around 12,000,000 c.f. per day. The gas showed a light gasoline content at .15 gallons per 1,000 feet, which is reasonably close to commercial production and which pointed to a possible solution of No. 2 well's difficulties.

Authoritative opinion stated in this connection that the appearance of salt water, though temporarily discouraging, does not necessarily mean that a well has no possibility of commercial oil or gas production. The structure can neither be definitely proven nor condemned without further exploitation.

To carry out public faith in this area, and in this quoted opinion, one other well besides the two already mentioned is drilling in this district and three more are to start almost immediately.

### *Pouce Coupe.*

With the recently established interest in Pouce Coupe taken by Messrs. Michael L. Benedum and Joseph C. Trees, famous Pittsburgh, Pennsylvania oil magnates, the development of this area will now be watched with added attention.

These two well-known operators are reported to have taken over 160,000 acres in the Pouce Coupe field in northern Alberta. Pouce Coupe is just south of the Peace River and practically on the Alberta-British Columbia boundary line.



An extensive drilling programme has been arranged which is to start with the completion of the Guardian well now drilling in that locality.

Pouce Coupe lies within 430 miles of the Pacific Ocean, a factor, in the event of major production becoming established, which will lend itself most readily to the question of pipe-line transportation.

The reported history of Mr. Benedum's career in the various oil-fields of the world carries a strong flavour of romance. It is a story of faith and courage which brought their own reward. Mexico, Columbia, Rumania and West Texas are the places mentioned at which Mr. Benedum's experimental work produced extremely beneficial results.

It is to be hoped that this romantic story of success will be carried forward into the Pouce Coupe area, an area which has often been stated to have remarkably similar characteristics to the great structures of Mexico and West Texas.

#### *Wainwright.*

The first deep test of the Wainwright field, some 140 miles south-east of Edmonton, is now under way as a result of the deepening of the Montreal-Alberta well.

The well is being drilled by cable tools and is to be carried down to the limestone. Difficulties which hitherto had held up deep test drilling operations in the field, are said to be now overcome. The well is at present at a depth of 3,500 feet and satisfactory progress is reported.

#### *Lloydminster and Vermilion.*

Drilling has been active this year at Lloydminster, about 150 miles due east of Edmonton on the Alberta-Saskatchewan border.

The Lloydminster Royalties and Shaw Petroleum wells have been finished at depths of 1,925 and 1,751 feet respectively with encouraging recoveries of both oil and gas.



In the opinion of Dr. F. F. Hintze, Professor of Geology at Salt Lake City University, the Lloydminster structure is a proven oil and gas field and when developed should be one of the major commercial petroleum areas in Canada.

At Vermilion, 25 miles west of Lloydminster, one well is drilling at 2,300 feet and a second is about to be started.

#### ADDITIONAL ACTIVITIES

Drilling at the Moose Dome field, 35 miles west and slightly south of Calgary, is at the moment inactive but resumption of operations in this most interesting structure is looked for in the very near future. At Jumping Pound, a foothill structure some 15 miles to the north-east, Rabson No. 1 well is drilling at a last reported depth of 3,260 feet.

On the untested Kootenay Dome about 40 miles west of Calgary in the foothills area, the Roxana well is to be completed as soon as possible. This well is stated to be amongst the most promising of the Devonian tests in Alberta. The last reported depth was around 3,922 feet, 800 feet in the Devonian limestone. Several promising strikes of gas have already been encountered.

The Clearwater well, also classified as a most interesting Devonian test, is drilling at 2,500 feet according to latest reports. It is situated in the foothills some 70 miles north-west of Calgary and about 100 miles straight west of Red Deer. Gas strikes have been made and the test is attracting considerable attention. Sixty miles to the north-west of the Clearwater well the Home-Brazeau No. 1 is reported drilling at a depth of over 6,000 feet.

At Taber, 35 miles straight east of Lethbridge and some 120 miles south-east of Turner Valley, five wells are drilling. Forty miles straight south of Turner Valley on Savannah Creek, Anglo-Canadian No. 1 is reported at 1,570 feet.

Ten miles north-west of Home-Millarville No. 2—situated in the extreme north end of Turner Valley and the largest



crude oil producer in Alberta—Mar Jon No. 5 is preparing to drill on Whisky Creek in the Bragg Creek area. On Grease Creek, 40 miles north-west of Calgary, Grease Creek No. 1 well is at a depth of 3,700 feet. On the international border Terminal Oils at Del Bonita is at 1,210 feet and Cord No. 1 at Spring Coulee is rigging.

## CONCLUSION

Between Home-Millarville No. 2 in the extreme north end of Turner Valley and Royalite No. 38 in the extreme south there is a distance of about 17 miles.

The former well is the largest crude producer in Alberta, the latter, the third largest, with Vulcan-Brown No. 1, about five miles to the north of Royalite No. 38, coming second.

The bulk of Turner Valley's oil production at the present time is secured from an area in the south end of the field which is approximately five miles from north to south and one mile from east to west in size.

The productive zone seems to extend in width from the gas area on its eastern boundary to the sudden dip in structure, necessitating very deep drilling—accompanied by the possible danger of salt water occurrences—on its west. The length of this productive area is still undetermined. At the extreme north and south ends of the present seventeen mile line, production is at its greatest.

The line curves slightly to the north-west following the general trend of the foothills. Drilling is now being carried on a mile south of this line and ten miles to the north. If production is secured at both these extensions the line will be lengthened to a total of 28 miles.

Between these northern and southern present limits is a vast area awaiting exploration, which is now being carried out. About halfway—approximately nine miles north and slightly west from Royalite No. 38—is Argus No. 1, which is drilling at a depth of 5,000 feet. Argus No. 1 is four miles north-west



of Vulcan-Brown No. 1, the second largest producer in the Valley.

Following the prospective area a mile and a half south from Argus No. 1, is Lethbridge Petroleums, No. 2 about to drill. A mile farther south are Davolite, No. 1 and Sun Ray, No. 1, both drilling. Still another mile in the same south-easterly direction is Anglo-Canadian No. 8 at 4,650 feet. One more mile to the south-east is East Crest No. 4, a producer about three-quarters of a mile to the west of Vulcan-Brown, No. 1. From Argus No. 1—about halfway along the seventeen mile line—to Home-Millarville, No. 2 in the north, a huge area awaits development. Should the wells just enumerated, drilling to the south of Argus No. 1, become productive, another tremendous area awaits exploitation to the south.

The prospects ahead for Turner Valley appear to be therefore as bright as ever for vastly increased production. The prospects for securing additional major fields within the province, with the widespread drilling operations now in force, are equally bright.

The ever-present question of market extension must of necessity determine the continuance of this activity. Not only for the protection of invested capital but also for additional absorption of the product.

EDMONTON

July 17, 1939







